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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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ROBERT E BUSHNELL  
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LM02/0524

EXAMINER
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MARC COLEMAN, M

ART UNIT	PAPER NUMBER
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2774

DATE MAILED: 05/24/99

3

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

08/922,300

Applicant(s)

Park

Examiner

Marthe Marc-coleman

Group Art Unit

2774



☒ Responsive to communication(s) filed on Sep 2, 1997

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-7 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-4 is/are rejected.

☒ Claim(s) 5-7 is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☒ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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### DETAILED ACTION

1. Claims 1-7 are presented for examination.

#### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krause (U.S. Patent No. 5,648,704) in view of Kitou et al. (U.S. Patent No. 4,956,587)

In regard to claim 1, Krause discloses that to control the pulse widths of the control signals for each of the transistors M1 and M2, a PWM signal is generated by a microcontroller (see col. 4 lines 40-42). Which correspond to the following steps:

pulse width modulation step, the horizontal/vertical processor step, and horizontal driver step.

- a horizontal deflection current produced in a horizontal deflection coil to create a magnetic field used to deflect an electron beam (produced by a cathode of the CRT) (see col. 1 lines 14-17).

- a DY coil connected through a capacitor CS to ground (see col. 2 line 56, and col. 3 line 1).

An S-correction capacitor to symmetrically modulate the H-scan current through the deflection coils, to correct raster distortion introduced due to the radius of the CRT face (see col.3 line 59-61).

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- a switching means which is interpreted as a power interruptor (see col. 6 lines 8-20).

Krause do not specifically disclose a current amplifier, and a constant voltage

- Kitou et al. Disclose:

- In the horizontal deflection current control circuit 41, of FIG. 1, a level shifter is formed by the transistors 22, 24, resistors 19, 21, . . . the level shifter and is thereby outputted as 20+ a volts.

Subsequently, the output voltage of the level shifter is current amplified by the operational amplifier 34 and the transistor 35, and then is fed to the modulation voltage output terminal 38. . . voltage E.sub.B at a rate of 1:1, hence maintaining constant the voltage V.sub.DY across the first scanning capacitor. Accordingly, the horizontal deflection current I.sub.DY is also maintained (see col. 7 lines 7-23).

At the time of the invention, it would have been obvious to one skilled in the art to utilize Kitou et al.' Horizontal deflection circuitry with Krause's horizontal beam deflection technique because it would improve composite horizontal deflection-high voltage circuit to be kept free from deterioration of the performance (see Kitou et al. col. 1 lines 26-30).

In regard to claim 2, Krause disclose :

- a switching means comprises first means for applying said charging voltage to said horizontal deflection coil with a first polarity and second means for applying said charging voltage to said horizontal deflection coil with a second polarity. Wherein said means for charging comprises a transformer including a secondary coil, said secondary coil being connected to said storage capacitor. Wherein said means for charging further comprises a diode connected between said

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secondary coil and said storage capacitor. Wherein first for applying comprises an electronic switch connected between said storage capacitor and said diode and first control means connected to said electronic switch for, responsive to said control signal, turning said electronic switch on and off (see col. 6 lines 8-25).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (U.S. Patent No. 5,701,237) in view of Krause (U.S. Patent No. 5,648,704).

In regard to claim 3, Yang discloses a power supply circuit for converting an alternating current into a direct current (see col. 1 lines 7-10).

- a switching power supply to lower the current, a polarity capacitor connected to the diode (see col. 8 lines 7-63).

Yang does not specifically disclose a horizontal deflection circuit under the control of a microcomputer.

Krause disclose :

- a horizontal deflection circuit under the control of a microcomputer (see col.1 lines 14-17).

At the time of the invention, it would have been obvious to one skilled in the art to utilize Krause et al.'s horizontal deflection circuitry with Yang switching power supply because it would lower power losses (see Krause abstract lines 13-15).

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5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (U.S. Patent No. 5,701,237) in view of Krause (U.S. Patent No. 5,648,704) as applied to claim 3 above and further in view of Kitou et al. (U.S. Patent No. 4,956,587) .

In regard to claim 4, Krause discloses that to control the pulse widths of the control signals for each of the transistors M1 and M2, a PWM signal is generated by a microcontroller (see col. 4 lines 40-42). Which correspond to the following steps:

pulse width modulation step, the horizontal/vertical processor step, and horizontal driver step.

- a horizontal deflection current produced in a horizontal deflection coil to create a magnetic field used to deflect an electron beam (produced by a cathode of the CRT) (see col. 1 lines 14-17).

- a DY coil connected through a capacitor CS to ground (see col. 2 line 56, and col. 3 line 1).

An S-correction capacitor to symmetrically modulate the H-scan current through the deflection coils, to correct raster distortion introduced due to the radius of the CRT face (see col.3 line 59-61).

- a switching means which is interpreted as a power interruptor (see col. 6 lines 8-20).

Krause do not specifically disclose a current amplifier, and a constant voltage

- Kitou et al. disclose:

- In the horizontal deflection current control circuit 41, of FIG. 1, a level shifter is formed by the transistors 22, 24, resistors 19, 21, . . . the level shifter and is thereby outputted as 20+ a volts.

Subsequently, the output voltage of the level shifter is current amplified by the operational amplifier 34 and the transistor 35, and then is fed to the modulation voltage output terminal

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38. . . voltage  $E_{sub.B}$  at a rate of 1:1, hence maintaining constant the voltage  $V_{sub.DY}$  across the first scanning capacitor. Accordingly, the horizontal deflection current  $I_{sub.DY}$  is also maintained (see col. 7 lines 7-23).

At the time of the invention, it would have been obvious to one skilled in the art to utilize Kitou et al.' Horizontal deflection circuitry with the combined device of Yang and Krause horizontal beam deflection technique because it would improve composite horizontal deflection-high voltage circuit to be kept free from deterioration of the performance (see Kitou et al. col. 1 lines 26-30).

6. The prior arts made of record and not relied upon are considered pertinent to applicant's disclosure (e.g. Leaver , Arai et al., Jackson et al., Morrish).

***Allowable Subject Matter***

7. Claims 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In regard to claims 5-7, none of the references, either singularly or in combination, teach or fairly suggest:

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“one terminal of said primary coil being connected to an output terminal of said pulse width modulation controller through a capacitor and another terminal of said primary coil being connected to the ground terminal;  
said field effect transistor having a drain terminal connected to a high voltage source and a source terminal connected in common to a second terminal of said secondary coil and one other side of a pulse transformer;”.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc-Coleman Marthe whose telephone number is (703) 305-4970. The examiner can be reached from Monday through Thursday 6:30AM to 5:00PM.

If any attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached at (703) 305-4709.

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to Group Receptionist whose telephone number is (703) 305-3900.

**Any response to this action should be mailed to :**

Commissioner of Patents and Trademarks

Washington, D. C. 20231

**or faxed to :**

(703) 308-9051, (for formal communications intended for entry)



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**OR :**

(703) 308-6606 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington. VA.,

Sixth Floor (Receptionist).

Patent Examiner

*MYM*

Marc-Coleman Marthe

May 19, 1999



**RICHARD A. HJERPE  
SUPERVISORY PATENT EXAMINER  
GROUP 2700**